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| 10/527,757 | 03/10/2005 | Christian Schott | 6305-0010WOUS | 3200 |
| 35301 7590 06/13/2008 MCCORMICK, PAULDING & HUBER LLP CITY PLACE II 185 ASYLUM STREET HARTFORD, CT 06103 | | | | |
| EXAMINER CHIU, TSZ K | | | | |
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/527,757

Applicant(s)

SCHOTT ET AL.

Examiner

Tsz K. Chiu

Art Unit

2822

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 March 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-26 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-26 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SG/US)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 12 and 24-26 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claims 12 and 24-26 are unclear what is meant by they have substantially the same resistance.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

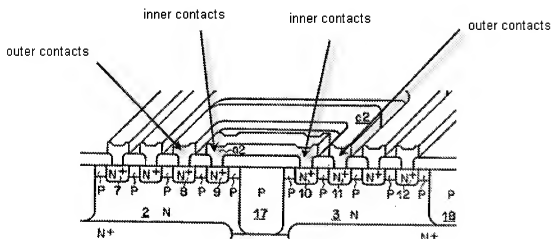
A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 12-26 are rejected under 35 U.S.C. 102(b) as being anticipated by Popovic et al. (4829352)

With respect to claim 12, Popovic discloses a Hall element (Figure 6) that has four contacts, said four contacts being two inner and two outer contacts (area of 9,10, 8 and 11, For example Fig. 6, see drawing below) arranged along a straight line, a first of said two outer contacts and a first of said two inner contacts being configured for supply and discharge of current flowing through the hall element and a second of said two outer contacts and a second of said two inner contacts being configured for tapping a hall voltage, wherein the two inner contacts (9 and 10, For example Fig. 6, see drawing

below) are the same width and wherein the two outer contacts (8 and 11, For example Fig. 6, see drawing below) are the same width, wherein said four contacts are arranged on a surface of a same well (2,3, For example Fig. 6) of a first conductivity type that is embedded in a substrate of a second conductivity type and wherein the two outer contacts (8 and 11, For example Fig. 6, see drawing below) are connected by an additional resistor (internal resistor when connected the electrode a2 and c2 , For example Fig. 6) so that a resistance between the two outer contacts is substantially the same as a resistance between the two inner contact.



With respect to claim 13, Popovic discloses wherein said additional resistor (internal resistor when connected the electrode a2 and c2 , For example Fig. 6) is formed by an additional well (2,3, For example Fig. 6) of the first conductivity type embedded in said substrate.

With respect to claim 14, Popovic discloses wherein said Hall element (Figure 6) further has a fifth contact arranged next to one of the two outer contacts (8 and 11, For example Fig. 6) of the Hall element (Figure 6) on a side facing an adjacent edge of the

well (2,3, For example Fig. 6) so that said additional resistor is formed in the well of the hall element between said fifth contact and the adjacent outer contact.

With respect to claim 15, Popovic discloses said Hall element (Figure 6) further has fifth contact and a sixth contact that are each arranged next to one of the outer contacts of the Hall element (Figure 6) on a side facing an adjacent edge of the well (2,3, For example Fig. 6), and that are connected via a conductor path so that said additional resistor is formed in the well of the hall element between said fifth contact and the respective adjacent outer contact and between said sixth contact and the respective adjacent outer contact.

With respect to claim 16-19, Popovic discloses wherein at least one electrode (a2, For example Fig. 6) electrically insulated from the well (2,3, For example Fig. 6) is arranged between two contacts.

With respect to claim 20-23, Popovic discloses a doping of the well (2,3, For example Fig. 6) in the areas between an inner contact and an outer contact (9,10, 8 and 11, For example Fig. 6).

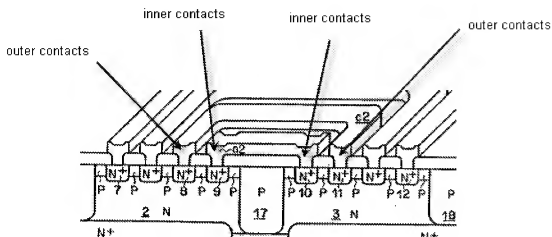
With respect to claim 24, Popovic discloses a Hall element (Figure 6) that has four contacts, said four contacts being two inner and two outer contacts (9,10, 8 and 11, For example Fig. 6) arranged along a straight line, a first of said two outer contacts and a first of said two inner contacts being configured for supply and discharge of current flowing through the hall element and a second of said two outer contacts and a second of said two inner contacts being configured for tapping a hall voltage, wherein the two inner contacts (9 and 10, For example Fig. 6) are the same width and wherein the two

outer contacts (8 and 11, For example Fig. 6) are the same width, wherein said four contacts are arranged on a surface of a same well (2,3, For example Fig. 6) of a first conductivity type that is embedded in a substrate of a second conductivity type and wherein at least one electrode (a2, For example Fig. 6) electrically insulated from the well (2,3, For example Fig. 6) is arranged between two contacts (9,10, 8 and 11, For example Fig. 6) so that the operation when a voltage is applied to the at least one electrode a resistance between the two outer contacts is substantially the same as a resistance between the two inner contact.

With respect to claim 25, Popovic discloses a Hall element (Figure 6) that has four contacts, said four contacts being two inner and two outer contacts (9,10, 8 and 11, For example Fig. 6) arranged along a straight line, a first of said two outer contacts and a first of said two inner contacts being configured for supply and discharge of current flowing through the hall element and a second of said two outer contacts and a second of said two inner contacts being configured for tapping a hall voltage, wherein the two inner contacts (9 and 10, For example Fig. 6) are the same width and wherein the two outer contacts (8 and 11, For example Fig. 6) are the same width, wherein said four contacts are arranged on a surface of a same well (2,3, For example Fig. 6) of a first conductivity type that is embedded in a substrate of a second conductivity type and wherein a doping of the well (2,3, For example Fig. 6) in an area between the two inner contacts (9 and 10, For example Fig. 6) is different to a doping of the well (2,3, For example Fig. 6) in the areas between an inner contact and an outer contact (9,10, 8 and

11, For example Fig. 6) so that a resistance between the two outer contacts is substantially the same as a resistance between the two inner contact.

With respect to claim 26, Popovic discloses a first a Hall element (Figure 6) that has four contacts, said four contacts being two inner and two outer contacts (area of 9,10, 8 and 11, For example Fig. 6, see drawing below) arranged along a straight line, a first of said two outer contacts and a first of said two inner contacts being configured for supply and discharge of current flowing through the hall element and a second of said two outer contacts and a second of said two inner contacts being configured for tapping a hall voltage, wherein the two inner contacts (9 and 10, For example Fig. 6, see drawing below) are the same width and wherein the two outer contacts (8 and 11, For example Fig. 6, see drawing below) are the same width, wherein said four contacts are arranged on a surface of a same first well (2,3, For example Fig. 6) of a first conductivity type that is embedded in a substrate of a second conductivity type and wherein the two outer contacts (8 and 11, For example Fig. 6, see drawing below) are connected by an additional resistor (internal resistor when connected the electrode a2 and c2 , For example Fig. 6) so that a resistance between the two outer contacts of the first Hall element is substantially the same as a resistance between the two inner contacts of the first Hall element,



a second Hall element (Figure 6) that has four contacts, said four contacts being two inner and two outer contacts (area of 9,10, 8 and 11, For example Fig. 6, see drawing above) arranged along a straight line, a first of said two outer contacts and a first of said two inner contacts being configured for supply and discharge of current flowing through the hall element and a second of said two outer contacts and a second of said two inner contacts being configured for tapping a hall voltage, wherein the two inner contacts (9 and 10, For example Fig. 6, see drawing above) are the same width and wherein the two outer contacts (8 and 11, For example Fig. 6, see drawing above) are the same width, wherein said four contacts are arranged on a surface of a well (2,3, For example Fig. 6) of a first conductivity type that is embedded in a substrate of a second conductivity type and wherein the two outer contacts (8 and 11, For example Fig. 6, see drawing above) are connected by an additional resistor (internal resistor when connected the electrode a2 and c2 , For example Fig. 6) so that a resistance between the two outer contacts of the second Hall element is substantially the same as a resistance between the two inner contacts of the second Hall element,

wherein the first and second straight line run in parallel and wherein the contacts of the first and second Hall element (Figure 6) are wired via conductor paths in such a way that the first Hall voltages of the first Hall element (Figure 6) and the second Hall voltages of the second Hall element (Figure 6) are equidirectional.

Response to Arguments

Applicant's arguments with respect to claims 12-26 have been considered but are moot in view of the new ground(s) of rejection. Applicant argues that the reference Popovic's four Hall contacts are not in the same well of the first conductivity type, Applicant also argues that the resistance is the substantially the same between the outer and inner pairs. However the resistors shown in figure 6 are formed in the same well ,semiconductor layer 5, see column 5 and 6. Reference Popovic discloses in column 7, lines 3-17 and figure 9A and 9B two resistors with a resistance R and two resistor with resistance $R + \Delta R$ and the two outer have resistance R, R and $R + \Delta R$ are substantially the same, as required by the claim.

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not

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mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tsz K. Chiu whose telephone number is 517-272-8656. The examiner can normally be reached on 0800 to 1700.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Zandra V. Smith can be reached on 571-272-2429. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zandra V. Smith/
Supervisory Patent Examiner, Art
Unit 2822

TC